

# Donovanosis in Western Australia

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**SUMMARY** We report and discuss a series of 47 consecutive patients with donovanosis that were diagnosed in a public health laboratory in Western Australia during slightly more than six years. Most came from the tropical northern parts of Western Australia, there was a preponderance of women in the series, and vulval lesions were the most common manifestation of the disease. Two men had extragenital lesions, though each was eventually found to have concomitant genital lesions.

## Introduction

The aetiological agent of donovanosis is a Gram negative bacillus, *Calymmatobacterium granulomatis*. It can be shown in biopsy specimens by special stains such as Warthin-Starry and, less easily, by Giemsa staining methods. By contrast, in air dried smears the Giemsa technique renders the organisms easily visible. The bacilli are more difficult to locate in fixed smears stained by the Papanicolaou method.

The old name for donovanosis, "ulcerating granuloma of the pudenda" draws attention to the salient features of the disease. Initially, a small nodule or papule forms in the skin or mucous membranes of the genitalia. This progresses to a superficial ulcer that is comparatively painless, has raised edges, is characteristically beefy red, and is friable. Absent or slight constitutional symptoms and the lack of involvement of regional lymph nodes help to differentiate donovanosis from other venereal diseases, such as chlamydial lymphogranuloma venereum.

Donovanosis is stated to be almost non-existent in Europe, Japan, and other temperate lands. Its incidence has considerably declined in China, Jamaica, and some parts of Papua New Guinea. It is still endemic, however, in Vietnam, Indonesia, Africa, southern Papua New Guinea, and southern India.<sup>1 2</sup> Donovanosis also seems to be endemic in the hotter areas of northern Australia.<sup>3 5</sup>

In the paper published here we review the details of 47 Western Australian patients with donovanosis.

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Cytological and histological examinations were undertaken by the State Health Laboratory Services during 1979 to early 1985. We briefly mention two patients with extragenital lesions who are reported on more fully elsewhere in this issue.<sup>6</sup>

## Patients, materials, and methods

Index files of cytological and histopathological diagnoses, which were maintained at the State Health Laboratory Services, were searched for possible cases of donovanosis. All relevant request forms and pathology reports were examined and 50 possible patients were identified. In 47 of these patients organisms with the typical morphology of *C granulomatis* had previously been identified in tissue slides or smears. Three patients (two men aged 34 and 61 with penile lesions and a woman aged 29 with perineal and inguinal lesions) were excluded from the series because, though they had suggestive clinical features, no organisms were shown in appropriately sectioned and stained biopsy specimens.

All biopsy specimens had been fixed in formalin, embedded in paraffin, sectioned at 5 µm thicknesses, and routinely stained with haematoxylin and eosin. Sections were also stained with Giemsa or Warthin-Starry, or both. Air dried smears from genital lesions were stained by the May-Grunwald-Giemsa method, and spray fixed smears were stained by the Papanicolaou technique.

## Results

### DIAGNOSTIC CRITERIA

Of the 47 patients diagnosed as having donovanosis, 46 underwent biopsy. Two had inconclusive biopsy

specimens, though both were positive on cytological examination of smears. One was diagnosed on cytology alone. Five were diagnosed by both techniques.

#### GEOGRAPHICAL DISTRIBUTION

Thirty eight (80.9%) patients lived in the area north of the tropic of Capricorn. The remaining nine came from more southern parts of Western Australia (fig 1)

#### PROFFERED DIAGNOSES

Thirty eight request forms were available for analysis. Three (7.9%) bore no clinical diagnoses. Nevertheless, doctors in areas where donovanosis is endemic were evidently adept at diagnosis, as 28 (73.7%) of all request forms included donovanosis in a list of differential diagnoses or as the only diagnosis. Syphilis was the next most considered disease (on 11 (28.9%) of all request forms). Some form of malignancy was included in the differential diagnosis on five (13.2%) request forms. Other proffered diagnoses included tuberculosis, pyoderma, non-specific genital infection, and chancroid.

#### CLINICAL FEATURES

In women, localised lesions of the vulva (17) and vagina (3) accounted for most lesions. Other anatomical areas affected were: the perianal or anal region (3); groin, upper thigh, or inguinal region (3); and perineum (1). Three women with vulval lesions also had cervical, groin, and inguinal lesions, respectively. One woman had anovaginal lesions.

Men most commonly (10) had lesions confined to the penis. One man had a lesion in the suprapubic area, another had a groin lesion, and a third had penile and groin lesions. Two men had extragenital manifestations of donovanosis. One, a patient aged 25 with multiple groin, scrotal, and penile lesions, required several hospital admissions for the treatment of sinuses and fistulae that opened on to his abdominal wall. The other patient was aged 28 and presented with neck lesions, after which he was discovered to have concomitant penile lesions. These two patients and a third who had bone infection (who was not included in this series) are described in greater detail in an accompanying report.<sup>6</sup>

#### SEX DISTRIBUTION

Women (31) outnumbered men (16), the overall ratio of women to men being 1.9 to 1. This overall preponderance of women was significant at better than the 1% level ( $X^2=10.0$ ). Almost identical ratios were seen in the subset of patients younger than 30 and in the subset aged 30 and older, but were not significant ( $X^2$  2.13 and 1.64 respectively) because of the smaller numbers of patients in each group.

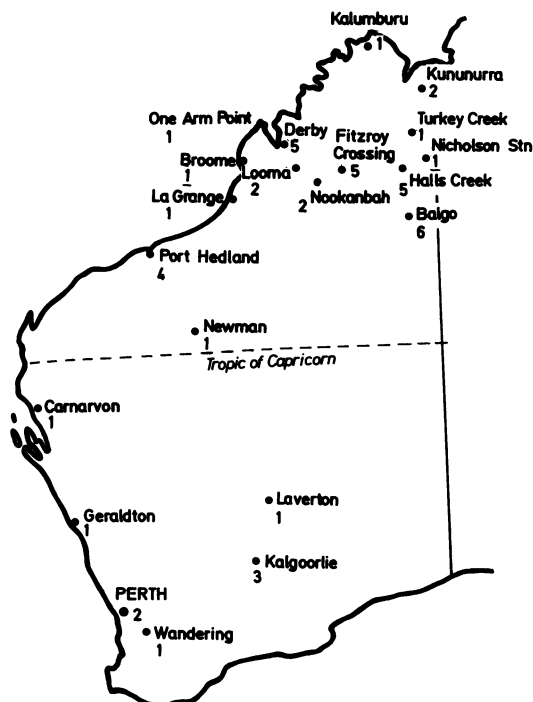


FIG 1 Geographical distribution of cases of donovanosis in Western Australia 1979-85.

#### AGE DISTRIBUTION

The ages of two women were not obtainable from the records. The mean (SD) age of the remaining 29 was 31.6 (15.1) (range 13 to 73) years. The mean (SD) age of the 16 men was 36.1 (17.1) (range 16 to 73) years. The table contains details of the age and sex of all patients with definite donovanosis. The differences between the ages of men and women were not significant (Kolmogorov-Smirnov two sample test).

TABLE Age and sex of patients with donovanosis diagnosed between 1979 and 1985 (inclusive)

Age range (years)	Men	Women	Total
10-19	2	7	9
20-29	6	8	14
30-39	2	8	10
40-49	4	2	6
50-59	0	2	2
60-69	1	1	2
70 and over	1	1	2
Not known	0	2	2
Total	16	31	47



FIG 2 Cervical biopsy showing formations of squamous cell carcinoma and lymphatic vessel involvement at lower left (haematoxylin and eosin).

#### OTHER DISEASES DIAGNOSED

Spirochaetes (presumably *Treponema pallidum*) were identified in the biopsy specimens of one woman aged 27 and one man aged 20. The biopsy specimen from the man also had the typical epithelial appearance of an herpetic infection. Another woman, with both vulval and cervical donovanosis, was also diagnosed as suffering from squamous cell carcinoma of the cervix (fig 2). Despite external radiation treatment, this woman developed a pelvic recurrence of her cervical neoplasm.

#### Discussion

Donovanosis is recognised as being common in the

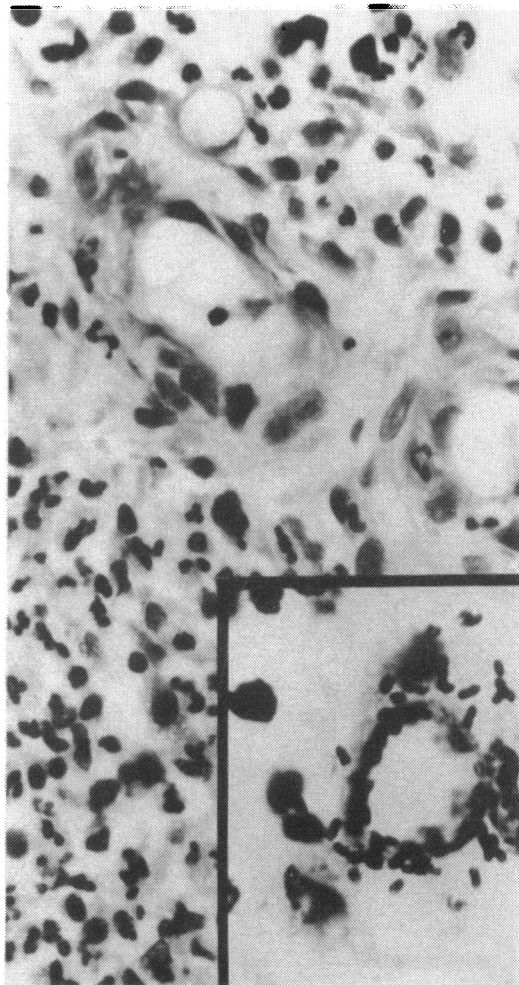


FIG 3 Typical histological findings in donovanosis. Granulation tissue with a mixed cellular inflammatory exudate (haematoxylin and eosin). Inset: Donovan bodies predominantly within a vacuolated histiocyte (Warthin-Starry, oil immersion).

northern parts of Australia. In 1953 Watsford and Alderman published details of 59 patients with donovanosis who came from the northern half of the Northern Territory.<sup>3</sup> In 1979 Ashdown and Kilvert drew attention to 13 patients with donovanosis diagnosed during slightly more than a year in Northern Queensland.<sup>5</sup> At Cairns, Northern Queensland, Brigden and Guard reported 43 patients with genital donovanosis diagnosed from July 1977 to January 1980.<sup>4</sup> Similarly, we report a clustering of cases of donovanosis in the northern part of Western Australia. All but nine of the proved cases were living north of the tropic of Capricorn, mostly 1000 km or more north of Perth.

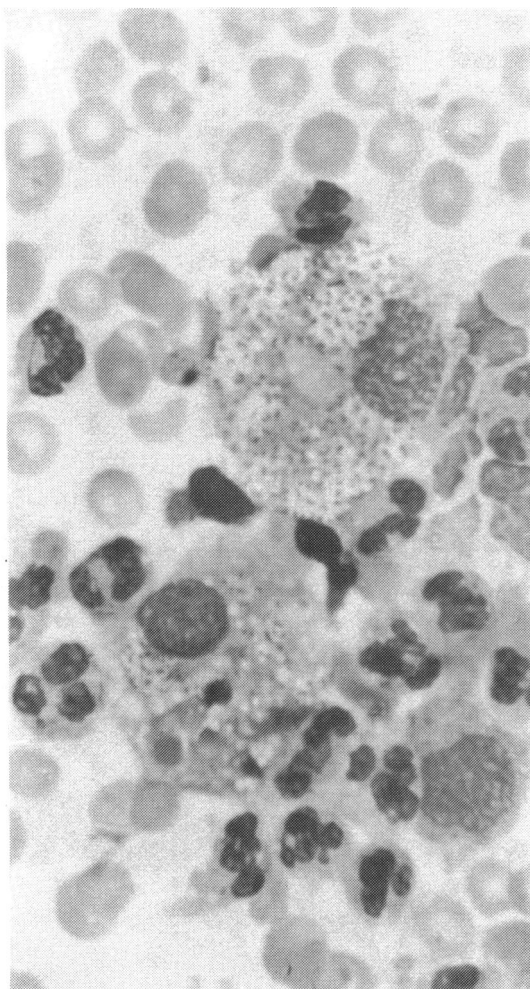


FIG 4 *Air dried smear. Numerous Donovan bodies within histiocytes. The organisms are curved and straight, encapsulated, and exhibit prominent bipolar staining (May-Grunwald-Giemsa, oil immersion).*

In our series women predominated, constituting 31 out of 47 proved cases. This preponderance of women has been observed in another area of Australia. In 1953 Watsford and Alderman reported having encountered 59 patients in Darwin Hospital since August 1946, of whom 42 were women.<sup>3</sup> In a small series of 13 patients with donovanosis from northern Queensland described by Ashdown and Kilvert, however, only six were women.<sup>5</sup> Nair and Pandalai from India reported that 37 out of 73 patients were women.<sup>7</sup> They commented that in younger age groups (aged 15 to 30) the disease was more common in women, whereas in older patients (aged over 30) it was more common in men. We are unable to confirm this

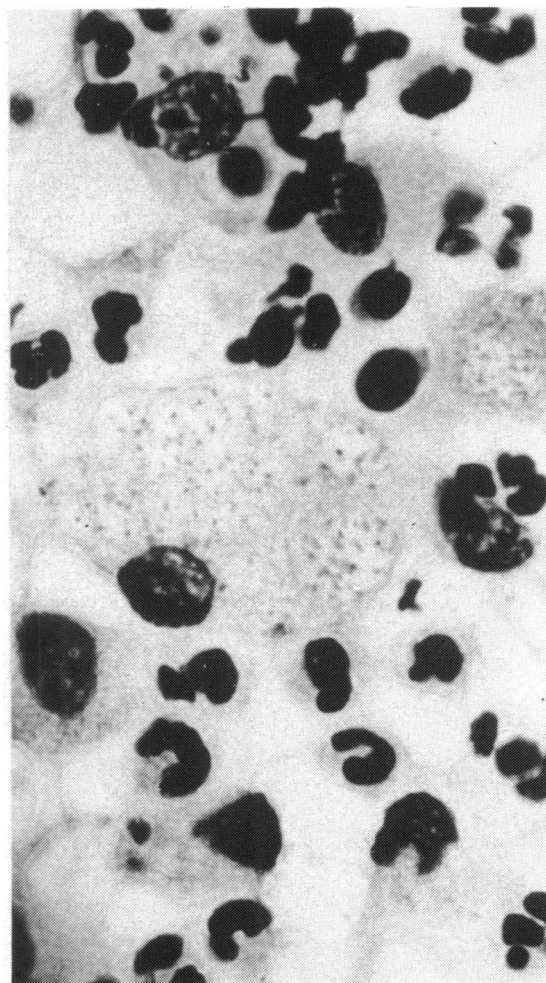


FIG 5 *Spray fixed smear. Pale staining Donovan bodies within histiocytes (Papanicolaou, oil immersion).*

assertion. A subsequent report by Lal and Nicholas from Pondicherry in India pointed to the outnumbering of women by men in a ratio of 2.3 to 1.<sup>8</sup> In 1977 Bhagwande and Naik described 40 histologically proved cases of donovanosis in Zambia during three and a half years, 35 of which were in women. They stated "This female preponderance is not unusual, as granuloma venereum is commoner in females". Some years previously Gelfand, working in Rhodesia (now Zimbabwe) had also asserted that the disease was more common in women.<sup>10</sup>

Histological diagnosis (fig 3) of donovanosis, which depends on showing the characteristic bacteria, is the usual diagnostic method. We have found that cytological diagnosis of donovanosis, on either air dried (fig 4) or spray fixed smears (fig 5) is a practicable adjunct

to histopathological analysis and should receive consideration for both men and women. It was used in eight of our patients, of whom five were women and three men. In two of these patients smears were positive when biopsies were negative. Cytodiagnosis was the only method used in one case. This method of diagnosis was reported by de Boer *et al*, who described the cytological findings in two patients with clinical histories of vulval lesions suggestive of carcinoma.<sup>11</sup>

In five (13.2%) of our 47 patients some form of carcinoma was included in the clinical differential diagnosis. Particularly when the cervix is affected, schistosomiasis, tuberculosis, and amoebiasis are well known to produce appearances suggestive of carcinoma. Donovanosis also displays this phenomenon. As shown by one of our women, however, suspicious appearances cannot be ignored as cervical carcinoma and donovanosis can coexist. Furthermore Sengupta reported that vulval cancer can also follow or coexist with donovanosis and suggested that such an infection may have carcinogenic potential.<sup>12</sup>

It is important that doctors should be acquainted with the appearance of the common lesions of donovanosis. Failure to diagnose this disease may lead to complications, such as progressive ulceration, the formation of fistulas, or puzzling forms of extragenital disease. The possibility of the coexistence of other venereal and non-venereal diseases should also be considered so that diagnosis and treatment may be optimised.

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